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TO STUDY THE OUTCOME OF PERCUTANEOUS EXTENSOR TENDON RELEASE IN LATERAL EPICONDYLITIS ELBOW (>2 MONTHS DURATION) AND ITS COMPARATIVE EVALUATION WITH CONSERVATIVE METHODS (REST, ANALGESICS AND PHYSIOTHERAPY)

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Abstract
Background- Tennis elbow is a common problem for patients whose activities require strong gripping or repetitive wrist movement's .The present study was aimed to evaluate percutaneous surgical release against the conservative treatment.
Methods- The present study was aimed to assess the outcome of percutaneous extensor tendon release in tennis elbow (>2 months duration) and do a comparative evaluation of the group treated by conservative management. During the study period, a total of 62 patients were randomized to receive either conservative treatment (CE; n=32) or treated by percutaneous method (PT; n=30).
Results- DASH score analysis showed that DASH score was significantly decreased
(P=0.000) at 3- and 6-months in both CE and PT groups. Oxford Elbow score significantly increased (P=0.000) at 3 and 6-months in both CE and PT groups.
Conclusion- Conservative method and Percutaneous tenotomy are equally effective in managing neglected tennis elbow (>2 months).
Keywords: DASH Score, Oxford elbow score, Tennis elbow.

Introduction

Tennis elbow is a common problem for patients whose activities require strong gripping or repetitive wrist movements. Tennis elbow is also known as lateral epicondylitis. Tennis elbow or lateral epicondylitis refers to a syndrome of pain centered over the common origin of the extensor muscles of the fingers and wrist at the lateral epicondyle. It was first reported in the literature in 1873 by Runge.[1] Tennis elbow is an overuse syndrome most prevalent in the fourth decade. Predominant symptoms of lateral elbow pain on gripping or resisted wrist dorsiflexion result in many consultations in primary care and days lost from work. Most patients will recover within a year.[2]

The initial treatment is with rest, modification of activity, local splints, and steroid injection, and 90% of patients respond to conservative treatment.[3] Steroid injections may provide relief of symptoms in up to 40% of patients. Patients who fail to respond to conservative measures may require surgery. Boyd and McLeod[4], and Posch, Goldberg and Larrey[5] reported that up to 8% of patients require surgery. The many operations available have been reviewed by Bosworth[6] include tenotomy of the extensor tendon, excision of the damaged portion of the tendon, exploration of the radiohumeral joint and alterations to the length of the tendon of ECRB.

The present study was aimed to evaluate percutaneous surgical release against the conservative treatment.

Material and methods

Study design

Hospital-based prospective study.

Study site

Department of Orthopedics, Dr. Rajendra Prasad Govt. Medical College, Kangra at

Tanda, HP, India.

Sample Size

All patients of tennis elbow consenting to be part of the study.

Study duration

2016-17 (One year)

Study population

All patients of tennis elbow (>2 months duration) visiting Outpatient Department of Department of Orthopedics during the year of 2016-2017.

Inclusion Criteria

- Lateral epicondylitis for a period of more than two months.
- Localised pain over lateral epicondyle.
- Positive chair lift test.
- No localized skin problems.
- Patients who give consent.

Exclusion criteria

- Lateral epicondylitis less than two months in duration.
- Any previous elbow surgery.
- Elbow pathology like rheumatoid arthritis, osteoarthritis or radial tunnel syndrome.
- Patients refusing to give consent

Methodology

After informed consent which includes explaining the disease and procedure in detail to the patients, patients were enrolled into the study. Patients fulfilling inclusion criteria were randomized to the outpatient department (OPD) based surgical procedure (Percutaneous tenotomy) and conservative therapy (Rest, NSAIDS, and physiotherapy). Before embarking on either the modality of treatment, patient was evaluated by history and examination of the patient, which included NRS, DASH, and Oxford Elbow score measurements. Subsequent to a particular treatment intervention, patients were followed up at 3 months and six months and evaluated by NRS, DASH,and Oxford score.

Statistical Assessment

Data were expressed as frequency, percentages or mean/standard deviation.

Comparison between 2 groups was made using student t-test while the single group at different time interval compared using paired t-test for quantitative variables. For categorical variables, chi-square test was used. Mann-Whitney test was used to compare non-parametric variables. A p value less than 0.05 was considered significant. Statistical analysis was performed using Epi-info version 7.2

Results

The present study was aimed to assess the outcome of percutaneous extensor tendon release in tennis elbow (>2 months duration) and do a comparative evaluation of the group treated by conservative management. During the study period, a total of 62 patients were randomized to receive either conservative treatment (CE; n=32) or treated by percutaneous method (PT; n=30).

Age analysis showed that the patients' age ranged from 26-67 years with mean age of 41.74 years (n=62). Age was non-significantly (P=.070) higher in PT group

(43.83±10.21) compared to CE group (39.78±6.84). Majority of the patients were of 31-40 year age-group followed by 41-50 year. Sex-based analysis showed that females dominated over males in both the groups. There was no significant sex-based difference (P=0.465) in CE and PT group.

Table 1: DASH score

DASH Score	**CE Group (n=32)^{C}**	**PT Group (n=30)^{P}**	p-value
Base line ^{a}	61.87±4.67	64.26±9.39	0.059^{P}
3-month ^{b}	57.49±5.17	60.19±4.99	0.081^{CP}
6-month ^{c}	54.40±6.45	58.08±7.87	0.087^{CP}
p-value	0.000^{ab}; 0.010^{ac}	0.000$^{ab;}$ 0.000^{ab}	

Our study observed that DASH score was significantly improved at 3-months (57.49±5.17 vs. 61.87±4.67; P=0.000) and 6-months (54.40±6.45 vs. 61.87±4.67;
P=0.000) when compared with baseline in CE group. Similar findings were observed in PT group where DASH score significantly improved at 3-months (60.19±4.99 vs. 64.26±9.39; P=0.000) and 6-months (58.08±7.87 vs. 64.26±9.39; P=0.000) when compared with baseline. We also observed that there was no difference in DASH score between CE and PT groups at baseline (61.87±4.67 vs.

64.26±9.39; P=0.059), 3-months (57.49±5.17 vs. 60.19±4.99; P=0.081), and 6-months (54.40±6.45 vs. 58.08±7.87; P=0.087).

Table 2: Oxford Elbow score

Oxford Elbow score	CE Group (n=32)[C]	PT Group (n=30)[P]	p-value
Base line [a]	31.59±3.41	32.53±2.93	0.87[cp]
3-month [b]	33.5±3.85	34.13±2.98	0.47[CP]
6-month [c]	34.78±4.17	35.87±2.30	0.21[CP]
p-value	0.000[ab]; 0.000[ac]	0.000[ab;] 0.000[ab]	

Our study observed that Oxford elbow score was significant improved at 3-months

(33.5±3.85 vs. 31.59±3.41; P=0.000) and 6-months (34.78±4.17 vs. 31.59±3.41;

P=0.000) when compared with baseline in CE group. Similar findings were observed in PT group where OES significantly improved at 3-months (34.13±2.98 vs.32.53±2.93; P=0.000) and 6-months (35.87±2.30 vs. 32.53±2.93; P=0.000) when compared with baseline. We also observed that there was no difference in OES between CE and PT groups at baseline (31.59±3.41 vs. 32.53±2.93; P=0.877), 3-months (33.5±3.85 vs. 34.13±2.98; P=0.476), and 6-months (34.78±4.17 vs.

35.87±2.30; P=0.211).

Discussion

The present study was aimed to evaluate the outcome of percutaneous extensor tendon release in resistant tennis elbow with conservative management. During the study period, a total of 62 patients were randomized to receive either conservative treatment (CE; n=32) or treated by percutaneous method (PT; n=30).

In our study found that DASH score was significantly improved at 3- and 6-month in both groups when compared with baseline.

Othman AM et al [7] compared arthroscopic versus percutaneous release of common extensor origin for treatment of chronic tennis elbow. They found that the average DASH score improved from 72 to 48 and the average VAS improved from 9.1 to 2 in arthroscopy group. In percutaneous tenotomy group, the average DASH score improved from 70 to 50 and the average VAS improved from 9 to 2.1. Concerning patient satisfaction after surgery, in the first group 7 patients (50%) were pleased, 6 (42.85%) were satisfied and 1 case (7.14%) was not satisfied. In the second group, 7 patients (36.84%) were pleased, 10 (52.63%) were satisfied and 2 cases (10.52%) were not satisfied. They concluded that both arthroscopic and percutaneous release of the common extensor origin could be effective in treatment of lateral epicondylitis with arthroscopic treatment giving more favorable results than percutaneous tenotomy.

Nazar et al.[8] presented the long-term results of percutaneous tennis elbow release in patients when conservative measures including local steroid injections failed to relieve the symptoms. They found that the postoperative outcome was good to excellent in most patients. They found that percutaneous release of the epicondylar muscles for humeral epicondylitis has a high rate of success, is relatively simple to perform, is done as a day care procedure and has been without complications. Percutaneous release is a viable treatment option after failed conservative management of tennis elbow.

Our study found that Oxford elbow score was significantly improved with time at 3 and 6 months in both groups while there was no significant difference between conservative and percutaneous method. Similar comparative studies have been done in past also where lateral epicondylitis was managed by two different methods and results compared. Nazar et al. have also shown that percutaneous release significantly improves Oxford elbow score in the patients with tennis elbow.[8] They also found postoperative Oxford elbow score was 42.8 whereas it was 35.87 in our study.

Grundberg et al.[9] had operated on 32 patients using the percutaneous technique as we have used and followed up for an average period of 26 months and evaluated the outcome using a scoring system similar to ours. They reported 29 out of 32 elbows had excellent or good results (90%) and three cases (10%) had unsatisfactory results.

Lakhey et al. [10]used a needle tenotomy technique for the release of tennis elbow on 21 elbows. In his series 76.2% of the cases had an excellent or good outcome, 19% had a satisfactory outcome and 4% had a poor outcome.

Conclusion

Conservative method and Percutaneous tenotomy are equally effective in managing neglected tennis elbow (>2 months).

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